DEPARTMENT OF THE ARMY
HEADQUARTERS, US ARMY COMMUNICATIONS-ELECTRONICS COMMAND
AND FORT MONMOUTH
FORT MONMOUTH, NEW JERSEY 07703-5000

REPLY TO
ATTENTION OF

February 10, 1986

Safety Office

Mr. Robert Hargrove
US Environmental Protection Agency
Region II
26 Federal Plaza
New York, NY 10270

Dear Mr. Hargrove:

On 5 February 1986, this command was provided with a copy of the recommendations made by the Air and Waste Management Division (AWMD) of the US Environmental Protection Agency (EPA) to the Emergency and Remedial Response Division of EPA. The recommendations related to information provided to EPA by this command concerning landfill and radiological sites located at Fort Monmouth. In response to the comments made by AWDM, the following information, keyed to the EPA document dated 28 January 1986, (Enclosure 1) are provided:

1. This section of the report comments on the Polonium-210 (Po-210) incident which occurred on or about 7 October 1971 at Building 45, Evans Area, Fort Monmouth. On 16 February 1972, a representative from the former US Atomic Energy Commission (AEC) (now the US Nuclear Regulatory Commission (NRC)) performed a routine inspection of all AEC licenses issued to the former US Army Electronics Command (ECOM) (now the US Army Communications-Electronics Command (CECOM)). At the time of the inspection, further inquiries were made regarding the Po-210 incident, to include a physical inspection of the incident location and all associated documentation. Results of the evaluation indicated that the AEC considered the area to be free of radioactive contamination.

2. The final closeout survey of Fort Hancock (Sandy Hook) was conducted by the US Army Environmental Hygiene Agency (AEHA) on 31 January 1986. Results indicate that the facility has no levels of removable contamination greater than the NRC standard for release of an area for unrestricted use (1000 dpm/100 cm^2). AEHA will provide CECOM with documentation to indicate these results.

Within 60-90 days, AEHA will provide a final report. The results will be sent to the NRC for a determination for unrestricted use status. The facility will remain secured until the NRC determines the site is available for unrestricted use.

3. There are two locations at Fort Monmouth where radioactive waste has been released into the sewerage system. These locations are identified as follows:

a. Building 45, Dilution Tanks, Evans Area. These tanks were installed for the purpose of catching any overflow that should arise from the periodic refilling of the pool containing the Cobalt-60 (Co-60) Irradiator Source. This source is located within Building 401, Evans Area and is authorized by NRC License No. 29-01022-10. As the tanks become filled, the water inside is monitored prior to release into the sewerage system. This water is released only if the radioactivity levels are below the standards stipulated in Title 10, Code of Federal Regulations (CFR) Part 20.303. A log book of radioactivity levels in these tanks indicate that levels released have never been in excess of these standards.

b. Patterson Army Hospital (PAH). In accordance with 10 CFR Part 31.11, a general license is issued to PAH for the purpose of using Iodine-125 for in-vitro clinical or laboratory testing not involving internal or external administration of byproduct material, or the radiation therefrom, to human beings or animals. PAH possesses a valid NRC certificate for this testing. Due to the small amounts of radioactivity involved in this testing, PAH is exempt from regulations stipulated in 10 CFR Parts 19, 20 and 21, and are allowed to dispose of their waste in the sewerage system.

4. Since there is no regulatory standard for radioactive contamination in soil, it is considered prudent to accept the maximum permissible concentration in water of the radionuclide in question. The standards for acceptable radioactive concentrations in effluents to unrestricted areas is specified in 10 CFR Part 20.106. The standard for Co-60 would therefore be identified as 3.00E-05 uCi/ml or 30 pCi/gm of soil for an individual in the exposed population. However, in keeping with the ALARA concept set forth in 10 CFR 20.1c, the acceptable standard for a suitable sample of the exposed population is taken as one-third this value or 10 pCi/gm of soil. Thus, the acceptable standard for the release of land for unrestricted use that had been contaminated with Co-60 was established as 10 pCi/gm of soil.

The "three times background" stipulation was based upon determinations made relating to conditions such as variations of the soil and statistical fluctuations of instrumentation. Necessary determinations were made for the purpose of establishing a criteria as to whether survey readings obtained represented actual findings or were merely the result of statistical fluctuation. Based upon the above, the three times background criteria was established because it provided a two sigma or 95% statistical confidence level that the survey readings obtained were representative of areas of actual contamination.

5. Radiation Protection Special Study Number 99-075-76, 7-9 June 1976, relates to determinations for the presence and extent of Co-60 contamination in soil and/or vegetation of Area G-2, and a small area surrounding Building T-383, Evans Area. Radiation Protection Special Study Number 43-0652-77, 4-5 November 1976, represents a re-survey of the above areas to ascertain the extent of radioactive contamination remaining in the soil and/or vegetation following decontamination procedures performed by ECOM. The latter study concluded that "radioactive contamination of soil and vegetation had been effectively removed from the Evans G-2 and Building T-383 area." A recommendation was made that each building where radioactive materials were used or stored was to be surveyed for possible contamination prior to release. This recommendation referred to the proposal at that time to close Evans Area and turn it over to the local township. This proposal was subsequently disapproved and the buildings that store radioactive materials under our NRC licenses remain unavailable for unrestricted use. The Evans Area currently has four areas where radioactive materials are used and/or stored; specifically Buildings 10A, 45, T-383 and 401. (Areas 4, 9, 7 and 8 respectively on the US Army Hazardous Toxic Material Agency (USATHAMA) Installation Report). Building T-29 (Area 5 on the USATHAMA Report) was the former ERADCOM Safety Office and no longer stores radioactive material. Each of these areas, exclusive of Building T-29, are surveyed on a monthly basis as required by NRC and/or Department of the Army (DA) requirements. As each of these storage/use areas are still actively being utilized, a "close-out" survey for proposed unrestricted use is not a consideration. When these areas are no longer necessary for the use and/or storage of radioactive materials, appropriate decommissioning procedures will be applied in order to obtain release for unrestricted use.

6. Disposal of radioactive materials is accomplished through established DA channels in accordance with 10 CFR and applicable Army regulations. Headquarters, US Army Armament, Munitions and Chemical Command (AMCCOM) has been delegated the responsibility of management coordination for radioactive waste disposal. AMCCOM assures that all radioactive wastes are packaged and shipped in accordance with all applicable requirements for ultimate transfer of the radioactive waste to an authorized burial site. At no time has radioactive waste been disposed of via burial at Fort Monmouth. All radioactive wastes are currently disposed of in accordance with procedures described above for ultimate disposal at either the Barnwell Site, Barnwell, SC, (operated by Chem Nuclear Corporation) or the Richland Washington Site (Hanford Nuclear Reservation) operated by US Ecology.

7. This command is licensed by the NRC to use Cesium-137 sources at the Evans Area of Fort Monmouth for the calibration of radiac instrumentation. As indicated in paragraph 6 above, no radioactive wastes and/or sources have ever been disposed of via burial at Fort Monmouth. The rationale for testing for Cesium-137 content in water is unknown. The latest analysis of the landfills, performed in accordance with a NJ Department of Environmental Protection permit for this purpose, does not require an analysis for Cesium-137 levels, or for an additional 27 other materials previously tested for in the Water Quality Engineering Report No. 32-24-0475.

8. Radiation Protection Survey No. 43-0744-78, 1-3 March 1978, was performed to evaluate the overall radiation protection program established by the former US Army Electronics Research and Development Command (ERADCOM). Surveys of this type are performed every three years by AEHA. These surveys include an administrative review of radiation protection documentation, a physical site inspection of radiation areas, and when deemed necessary, radiation level measurements. This particular survey did not involve performing actual radiation level measurements. The radiation survey concluded that no health hazards existed from the use and storage of ionizing radiation producing devices and/or radioactive sources utilized by ERADCOM. As discussed in paragraph 5 above, sites which utilize and/or store radioactive materials are surveyed on a monthly basis as required by DA and NRC regulations. Records of these surveys are maintained by the responsible Radiation Protection Officer.

Sincerely,

Steven A Horne

STEVEN A. HORNE
Acting Chief, Safety Office

DEPARTMENT OF THE ARMY
HEADQUARTERS, US ARMY COMMUNICATIONS-ELECTRONICS COMMAND
AND FORT MONMOUTH
FORT MONMOUTH, NEW JERSEY 07703-5000

REPLY TO
ATTENTION OF

January 7, 1986

Safety Office

Mr. Robert Hargrove
US Environmental Protection Agency
Region II
26 Federal Plaza
New York, New York 10270

Dear Mr. Hargrove:

In accordance with your telephonic request on 20 December 1985, the following documents referenced in the US Army Toxic and Hazardous Materials Agency (USA-THAMA) Installation Assessment of Fort Monmouth, Report No. 171, May 1980, are provided as indicated below:

a. US Army Environmental Hygiene Agency (USAEHA) Special Study No. 41-003-69, 1 July - 16 August 1968 (Enclosure 1). This was an evaluation of the potential internal exposure of two individuals who worked at the Sandy Hook Neutron Generator Facility. The results indicated that these individuals were not overexposed.

b. USAEHA Memorandum For Record, 5 January 1972, subject: "Radiation Incident" at Fort Monmouth, NJ (Enclosure 2). This memorandum discusses the contamination of a work area resulting from a Polonium-210 Alpha Irradiator on 6 October 1971. The area was subsequently decontaminated. Contaminated materials were disposed of as radioactive waste. USAEHA bioassay results on the individuals involved are documented in their medical records. USAEHA provided no recommendations for further actions.

c. USAEHA Special Study Nos. 99-075-76 and 43-0652-77, June and November 1976, respectively (Enclosure 3). These studies were conducted prior to and after the decontamination of Area G-2, which was determined to be contaminated with Cobalt-60. Results of the November study indicated that Area G-2 had been effectively decontaminated. This area was subsequently released for unrestricted use. The recommendation provided at paragraph 8 of this report was made since consideration at that time was being given to release the Evans Area to a local municipality. This never occurred.

d. USAEHA Survey No. 43-0744-78, 1-3 March 1978 (Enclosure 4). This survey was performed by the USAEHA to determine the presence and extent of health hazards from ionizing radiation sources possessed by the US Army Electronics Research and Development Command (ERADCOM) at Fort Monmouth. The subject of the Neutron Generator Facility, then still in operation, was addressed. The report concluded that "...there were no health hazards resulting from the use and storage of ionizing radiation producing devices and sources at ERADCOM, Fort Monmouth."

In addition, the following report not referenced in the 1980 USATHAMA Report, is also being provided:

USAEHA Special Study No. 28-43-0263-82, 14 March 1982 (Enclosure 5). This study was performed to assess the contamination present in the Neutron Generator Facility at Sandy Hook. The report concluded that the contamination levels exceeded the Nuclear Regulatory Commission (NRC) guidelines for decontamination of facilities and equipment prior to release for unrestricted use. Further, the report provided recommendations for decontamination and subsequent release of the building. Since the 1982 report, the facility has been decommissioned. Contaminated equipment, ducts and the stack from the facility have been removed and disposed of as radioactive waste. At this time the facility has not been released for unrestricted use. Small, localized areas of residual low level tritium contamination were detected and subsequently decontaminated. A request for an independent USAEHA final closeout verification survey of the facility has been made. Once this survey is completed the results will be forwarded to the NRC. The site shall continue to be secured until the NRC acknowledges that the facility can be made available for unrestricted use. It should be noted that the operation, decommissioning and decontamination of this facility have been performed in accordance with a valid NRC license. Periodic, routine health physics inspections have been conducted at the facility since its inception. There never were any overexposures to personnel as a result of the existence of the facility.

Distribution of the above documents is limited to US Government Agencies only. Other requests for these documents must be referred to this headquarters, ATTN: AMSEL-SF.

I hope these reports satisfy your request and if I can be of any further assistance, please do not hesitate to contact me at (201) 544-4427.

Sincerely,

Steven A. Horne

STEVEN A. HORNE
Acting Chief, Safety Office

5 Enclosures